

REMARKS

The Examiner is thanked for the due consideration given the application.

Upon entry of this amendment claims 1-11 and 13-20 remain in this application. By this amendment claim 12 is canceled and its subject matter is incorporated into claim 1.

No new matter is believed to be added to the application by this amendment.

Entry of this amendment is respectfully requested because it cancels a claim and places the application in condition for allowance.

Art Rejections

Claims 1-9, 12, 15-18 and 20 remain rejected under 35 USC §103(a) as being unpatentable over YAMAGUCHI et al. (U.S. Publication 2002/0037458) in view of ARMAND (U.S. Patent 4,818,644).

Claims 10 and 11 remain rejected under 35 USC §103(a) as being unpatentable over YAMAGUCHI et al. in view of ARMAND, and further in view of FLEISCHER et al. (U.S. Patent 6,225,009).

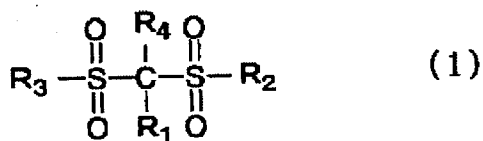
Claims 13 and 14 remain rejected under 35 USC §103(a) as being unpatentable over YAMAGUCHI et al. in view of ARMAND, and further in view of UTSUGI et al. (U.S. Publication 2004/0043300).

Claim 19 remains rejected under 35 USC §103(a) as being unpatentable over YAMAGUCHI et al. in view of ARMAND, and further in view of SHIOTA (U.S. Patent 5,795,674).

These rejections remain respectfully traversed.

The present invention pertains to a secondary battery that includes an electrolyte solution that contains a compound represented by the general formula (1):

[Formula 1]



The compound of general formula (1) has two sulfonyl groups, has small LUMO, and is easily reduced because the value of LUMO is smaller than those of a solvent composed of a cyclic carbonate or a chain carbonate and a monosulfonate in the electrolyte solution. Therefore, a reduction film of the compound of general formula (1) is formed on the negative electrode prior to a solvent composed of a cyclic carbonate or a chain carbonate, and plays a role of inhibiting decomposition of solvent molecules.

Since decomposition of solvent molecules is inhibited, a decomposition film of high-resistance solvent molecules becomes difficult to be formed on the negative electrode, and therefore an unexpected inhibition of an increase in resistance and an

improvement in cycle characteristic can be expected (See paragraph [0054] of the specification).

The prior art does not teach and suggest that the compound of general formula (1) is contained in the electrolyte solution in an amount of 0.1 to 5.0% by weight basis. Moreover, when the compound of general formula (1) of 0.1 to 5.0 weight% is contained in the electrolyte solution, the secondary battery has a high capacity maintenance rate and that is unexpected effects over the prior art (See paragraph [0078], Examples 26-33 of the specification).

Additional distinctions of the present invention over the prior art have been made of record in the application which, for brevity, are not repeated here.

One of ordinary skill and creativity would thus not produce a claimed embodiment of the present invention from a knowledge of the applied art. A *prima facie* case of unpatentability has thus not been made.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Double Patenting Rejections

Claims 1-9, 12, 15-18 and 20 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of co-pending Application No. 10/541,063 in view of YAMAGUCHI et al.

Claims 10 and 11 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of co-pending Application No. 10/541,063 in view of YAMAGUCHI et al. and FLEISCHER et al.

Claims 13 and 14 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of co-pending Application No. 10/541,063 in view of YAMAGUCHI et al. and UTSUGI et al.

Claim 19 has been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of co-pending Application No. 10/541,063 in view of YAMAGUCHI et al. and SHIOTA.

It is respectfully requested that action on the double patenting rejections remain forestalled until the issue ripens and one of the co-pending applications matures into a patent.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statements filed May 13, 2009, March 21, 2007 and June 14, 2006 and for making the references therein of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

As no issues remain, the issuance of a Notice of Allowability is respectfully solicited.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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